

PATENT
Attorney Docket No.: 16869P-107800US
Client Ref. No.: 340300186US01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

NAOKO IKEGAYA *et al.*

Application No.: 10/789,771

Filed: February 27, 2004

For: SUPPORT SYSTEM FOR DATA
MIGRATION

Customer No.: 20350

Examiner: Unassigned

Technology Center/Art Unit: 2175

Confirmation No.: 1911

**RENEWED PETITION TO MAKE
SPECIAL FOR NEW APPLICATION
UNDER M.P.E.P. § 708.02, VIII & 37
C.F.R. § 1.102(d)**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Decision dated May 12, 2005 dismissing the original petition to make special, Applicants respectfully submit a renewed petition to make special the above-identified application under MPEP § 708.02, VIII & 37 C.F.R. § 1.102(d). The application has not received any examination by an Examiner.

(a) The Commissioner has previously been authorized to charge the petition fee of \$130 under 37 C.F.R. § 1.17(i) and any other fees associated with this paper to Deposit Account 20-1430.

(b) All the claims are believed to be directed to a single invention. If the Office determines that all the claims presented are not obviously directed to a single invention, then Applicants will make an election without traverse as a prerequisite to the grant of special status.

(c) Pre-examination searches were made of U.S. issued patents, including a classification search, a computer database search, a keyword search, and a literature search. The searches were performed on or around November 10, 2004, and were conducted by a professional search firm, Kramer & Amado, P.C. The classification search covered Class 711 (subclasses 100 and 112) for the U.S. and foreign subclasses identified above. The computer database search was conducted on the USPTO systems EAST and WEST. The keyword search was conducted in Class 707 (subclasses 201, 202, 203, and 205), Class 709 (subclasses 203, 213, and 219), and Class 711 (subclasses 111, 114, 162, 163, and 165). The literature search was conducted on the Internet and commercial databases for relevant nonpatent documents. The inventors further provided two references considered most closely related to the subject matter of the present application (see references #5-6 below), which were cited in the Information Disclosure Statements filed on February 27, 2004.

(d) The following references, copies of which were previously submitted, are deemed most closely related to the subject matter encompassed by the claims:

- (1) U.S. Patent Publication No. 2003/0093439 A1;
- (2) U.S. Patent Publication No. 2004/0049553 A1;
- (3) U.S. Patent No. 6,598,174 B1;
- (4) U.S. Patent No. 6,571,354 B1;
- (5) U.S. Patent No. 6,108,748; and
- (6) Japanese Patent Publication No. JP 2000-187608.

(e) Set forth below is a detailed discussion of references which points out with particularity how the claimed subject matter is distinguishable over the references.

A. Claimed Embodiments of the Present Invention

The claimed embodiments relate to a support system for data migration suitable for providing support for efficiently migrating data from an old storage device to a new storage device and removing the old storage device within a computer system, particularly in a large-scale computer system, to which a plurality of storage devices are connected.

Independent claim 1 recites a data migration support system, comprising a computer; a storage device connected to the computer; means for registering identification information about an unnecessary file to identify one or more unnecessary files; first means for determining whether a file stored on the storage device is one of the unnecessary files; and second means for determining, for a file that is not one of the unnecessary files, whether the file is to be migrated to another storage device.

Independent claim 9 recites a data migration support program for a computer system that is connected to a computer and a removable storage device or a storage device for storing data on a removable medium. The program comprises code for registering identification information about an unnecessary file to identify one or more unnecessary files; code for judging whether a file stored on the removable storage device or the removable storage medium is one of the unnecessary files; code for if the file stored on the removable storage device or the removable storage medium is not one of the unnecessary files, then judging whether the file is migrated to another storage device; and code for, if each file stored on the removable storage device or the removable storage medium has been judged to be one of the unnecessary files or has migrated to the another storage device, displaying information to indicate that data migration is completed for the removable storage device or the removable storage medium.

Independent claim 12 recites a data migration support device connected via a network to a first computer system that includes a removable storage device or a storage device for storing data on a removable storage medium and a second computer connected to the removable storage device or the storage device for storing data on a removable storage medium. The device comprises a processor; a controller; a memory; a communication device connected to the network; and a display unit. The processor registers identification

information about an unnecessary file with the memory to identify a plurality of registered unnecessary files, judges whether a file stored on the removable storage device or the removable storage medium is one of the registered unnecessary files, and if the file is not a registered unnecessary file, then judging whether the file is migrated to another storage device. If each file stored on the removable storage device or the removable storage medium has been determined to be one of the registered unnecessary files or has been migrated to the another storage device, then the controller outputs information to the display unit to indicate that data migration is completed for the removable storage device or the removable storage medium.

One of the benefits that may be derived is that it provides a method for providing support for data migration, identifying a removable storage device accurately and quickly, and identifying a storage medium that has completed data migration in a computer system to which a removable storage device or a storage device for storing data on a removable storage medium is connected.

B. Discussion of the References

1. U.S. Patent Publication No. 2003/0093439 A1

This reference relates to a method and apparatus for relocating data related to database management system in which a data storage position management main program collects volume physical storage position management information and physical storage apparatus operation information from a storage apparatus, and stores them as storage apparatus arrangement information and storage apparatus operation information. The program also collects necessary information from schema information in a DBMS, stores it as DBMS schema information, collects mapping information in a host and virtual volume information in a virtual volume switch, stores them as data storage position management information, acquires execution history information from the host, and stores it as a DBMS execution history information. See paragraphs [0060]-[0077].

The reference is directed to a data relocation plan that makes use of DBMS schema information, mapping information, and virtual volume information. It does not teach, however, registering identification information about an unnecessary file to identify one or more unnecessary files; determining whether a file stored on the storage device is one of the

unnecessary files; and determining, for a file that is not one of the unnecessary files, whether the file is to be migrated to another storage device, as recited in independent claims 1, 9, and 12.

2. U.S. Patent Publication No. 2004/0049553 A1

This reference discloses an information processing system for migrating data from a migration source storage subsystem in which a storage area has been housed from a host to a migration target storage subsystem. Configuration information is read out of the migration source storage subsystem, and on the basis of the information, the storage subsystem of the data migration target will be configured and a storage area will be provided.

The reference is directed to migrating data from a source storage subsystem to a target storage subsystem by configuring the target storage subsystem based on configuration information read out of the source storage subsystem. While the reference discloses data migration based on configuration information, it does not teach registering identification information about an unnecessary file to identify one or more unnecessary files; determining whether a file stored on the storage device is one of the unnecessary files; and determining, for a file that is not one of the unnecessary files, whether the file is to be migrated to another storage device, as recited in independent claims 1, 9, and 12.

3. U.S. Patent No. 6,598,174 B1

This reference discloses a method and apparatus used in a storage network that facilitates the protection of data in, and replacement of, storage devices about to fail before the failure happens. The method provides for selecting a particular spare storage device, which can be used in place of the first particular storage device. In response to detecting the condition, data stored in the first particular storage device is migrated to the second particular storage device, and the second particular storage takes the place of the first particular storage device in the non-redundant array.

The reference is directed to storage unit replacement in a non-redundant array of storage devices when conditions of likely failure of a storage device are detected. While the reference discloses data migration from one storage device to a replacement storage device, it does not teach registering identification information about an unnecessary file to

identify one or more unnecessary files; determining whether a file stored on the storage device is one of the unnecessary files; and determining, for a file that is not one of the unnecessary files, whether the file is to be migrated to another storage device, as recited in independent claims 1, 9, and 12.

4. U.S. Patent No. 6,571,354 B1

This reference relates to a method for managing data in a network, comprising, detecting a condition of a first particular storage device in a particular set of storage devices in a plurality of sets of storage devices; in response to detecting a condition, migrating the data set stored in the first particular storage device to the second particular storage device and identifying the second particular storage device as a member of the first particular set; and, determining whether a spare device is available for use in the first particular set of storage devices, and if a spare device is not available, then enabling the migrating of the data set to the second particular storage device.

The reference is directed to storage unit replacement according to array priority. The replacement storage device is selected according to descending priority. While the reference discloses data migration to a replacement storage device selected based on priority, it does not teach registering identification information about an unnecessary file to identify one or more unnecessary files; determining whether a file stored on the storage device is one of the unnecessary files; and determining, for a file that is not one of the unnecessary files, whether the file is to be migrated to another storage device, as recited in independent claims 1, 9, and 12.

5. U.S. Patent No. 6,108,748

This reference relates to on-line, real-time, transparent data migration from an existing storage device to a replacement storage system. The existing and replacement storage devices are connected as a composite storage device that is coupled to a host network, or other data processing system. The replacement storage device includes a table which identifies data elements that have migrated to the replacement storage device. When a host system makes a data transfer request for one or more data elements, the replacement storage device determines whether the data elements have been migrated. If the data elements have migrated, the replacement storage device responds to the data transfer request independently

of any interaction with the existing storage device. If the data elements have not migrated, the replacement storage device migrates the requested data elements and then responds to the data request and updates the data element map or table. When not busy servicing other requests, the replacement storage device operates in a background mode to migrate data elements so the data migration can occur concurrently with and transparently to system operations.

As discussed in the present application at page 3, line 20 to page 4, line 19, when a large-scale system is used so that data migration involves both a data owner and a system administrator, it is difficult to accurately determine whether data other than the selected migration data in the storage device to be removed is unnecessary using the method as disclosed in this reference. If the same data is duplicated in a large number of storage devices, it means that the storage devices are wasted unless such duplication aims at providing high-speed access or reliability enhancement. Even when the entire data stored on a certain storage device or storage medium is unnecessary or the same data is stored on another storage device, such storage device or storage medium may be left unremoved. Such results are contrary to the demand for effective use of storage devices and storage media.

The reference does not teach registering identification information about an unnecessary file to identify one or more unnecessary files; determining whether a file stored on the storage device is one of the unnecessary files; and determining, for a file that is not one of the unnecessary files, whether the file is to be migrated to another storage device, as recited in independent claims 1, 9, and 12.

6. Japanese Patent Publication No. JP 2000-187608

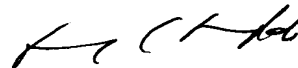
This reference discloses a technique to execute data movement between new and old storage devices by file units without any interference of a host computer. A new storage device subsystem 3 is provided with two interfaces 31, 32, and connected with a host 1 and an old storage device subsystem 2. The new storage device subsystem 3 copies the data of a volume in the old storage device subsystem 2 to its own volume in the order of the head, and records the position at which the copy is completed in a copy pointer 43. The new storage device subsystem 3 accepts access from the host 1 as if it is access from the old storage device subsystem 2.

As discussed in the present application at page 3, line 20 to page 4, line 19, when a large-scale system is used so that data migration involves both a data owner and a system administrator, it is difficult to accurately determine whether data other than the selected migration data in the storage device to be removed is unnecessary using the method as disclosed in this reference. If the same data is duplicated in a large number of storage devices, it means that the storage devices are wasted unless such duplication aims at providing high-speed access or reliability enhancement. Even when the entire data stored on a certain storage device or storage medium is unnecessary or the same data is stored on another storage device, such storage device or storage medium may be left unremoved. Such results are contrary to the demand for effective use of storage devices and storage media.

The reference does not teach registering identification information about an unnecessary file to identify one or more unnecessary files; determining whether a file stored on the storage device is one of the unnecessary files; and determining, for a file that is not one of the unnecessary files, whether the file is to be migrated to another storage device, as recited in independent claims 1, 9, and 12.

(f) In view of this petition, the Examiner is respectfully requested to issue a first Office Action at an early date.

Respectfully submitted,



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